

What is claimed is:

1. A communication system for enabling a mobile node residing in a first communication network to communicate via a gateway with a communication distant node, comprising connection  
5 information control means for exchanging the connection information before handover and the connection information after handover between said mobile node and said gateway, when said mobile node is moved to a second communication network.
2. The communication system according to claim 1, wherein said  
10 connection information control means comprises post-handover connection information transmitting means for transmitting the connection information after handover to said gateway at said mobile node, connection information associating means for  
15 receiving the connection information and associating it with the connection information before handover at said gateway, and connection information converting means for converting the connection information after handover transmitted from said mobile node into the connection information before handover to  
20 transmit the converted connection information to said communication distant node, and converting the connection information before handover transmitted from said communication distant node into the connection information after handover to transmit the converted connection information to said mobile node, based on said association result at said gateway.

3. The communication system according to claim 1, wherein each of said mobile node and said gateway comprises a connection management module, in which said connection information control means is composed of said two connection management modules.

5 4. The communication system according to claim 3, wherein said connection management module is located on the network layer, in which said connection information includes a transmission source IP address and a transmission destination IP address.

10 5. The communication system according to claim 3, wherein said connection management module is located on the transport layer, in which said connection information includes a transmission source IP address, a transmission destination IP address, a transmission source port number, a transmission destination port number and a kind of transport layer.

15 6. A communication method for enabling a mobile node residing in a first communication network to communicate via a gateway with a communication distant node, comprising a connection information control step of exchanging the connection information before handover and the connection information after  
20 handover between said mobile node and said gateway, when said mobile node is moved to a second communication network.

7. The communication method according to claim 6, wherein said connection information control step comprises a post-handover connection information transmitting step of transmitting the

connection information after handover to said gateway at said mobile node, a connection information associating step of receiving the connection information and associating it with the connection information before handover at said gateway, and  
5 a connection information converting step of converting the connection information after handover transmitted from said mobile node into the connection information before handover to transmit the converted connection information to said communication distant node, and converting the connection  
10 information before handover transmitted from said communication distant node into the connection information after handover to transmit the converted connection information to said mobile node, based on said association result at said gateway.

8. The communication method according to claim 6, wherein each  
15 of said mobile node and said gateway comprises a connection management module, in which said connection information control step is performed by said two connection management modules.

9. The communication method according to claim 8, wherein said connection management module is located on the network layer,  
20 in which said connection information includes a transmission source IP address and a transmission destination IP address.

10. The communication method according to claim 8, wherein said connection management module is located on the transport layer, in which said connection information includes a transmission  
25 source IP address, a transmission destination IP address, a

transmission source port number, a transmission destination port number and a kind of transport layer.

11. A mobile node in a communication system for enabling said mobile node residing in a first communication network to  
5 communicate via a gateway with a communication distant node, comprising a network interface for mediating the communication with said first communication network, a user interface for mediating the communication with the user, and a control unit for controlling said interfaces, said control unit further  
10 comprising a program storing memory, in which said program storing memory stores a connection management module for exchanging the connection information before handover and the connection information after handover between said mobile node and said gateway, when said mobile node is moved to a second communication  
15 network.

12. The mobile node according to claim 11, wherein said connection management module comprises a control signal processing part for transmitting a control message to said gateway and receiving the control message from said gateway, a data  
20 conversion part for converting the connection information, and a connection information management part for storing the connection information.

13. The mobile node according to claim 11, wherein said connection management module is located on the network layer,

in which said connection information includes a transmission source IP address and a transmission destination IP address.

14. The mobile node according to claim 11, wherein said connection management module is located on the transport layer,  
5 in which said connection information includes a transmission source IP address, a transmission destination IP address, a transmission source port number, a transmission destination port number and a kind of transport layer.

15. A mobile node communication method for a mobile node in  
10 a communication system for enabling said mobile node residing in a first communication network to communicate via a gateway with a communication distant node, comprising a connection information control step of exchanging the connection information before handover and the connection information after  
15 handover between said mobile node and said gateway, when said mobile node is moved to a second communication network.

16. The mobile node communication method according to claim 15, wherein said connection information control step comprises a control signal processing step of transmitting a control message  
20 to said gateway and receiving the control message from said gateway, a data conversion step of converting the connection information, and a connection information management step of storing the connection information.

17. The mobile node communication method according to claim  
15, wherein said connection information control step is located  
on the network layer, in which said connection information  
includes a transmission source IP address and a transmission  
5 destination IP address.

18. The mobile node communication method according to claim  
15, wherein said connection information control step is located  
on the transport layer, in which said connection information  
includes a transmission source IP address, a transmission  
10 destination IP address, a transmission source port number, a  
transmission destination port number and a kind of transport  
layer.

19. A gateway in a communication system for enabling a mobile  
node residing in a first communication network to communicate  
15 via said gateway with a communication distant node, comprising  
a mobile node network interface for mediating the communication  
with a third communication network on the side of said mobile  
node, a communication distant node network interface for  
mediating the communication with a fourth communication network  
20 on the side of said communication distant node, and a control  
unit for controlling said interfaces, said control unit further  
comprising a program storing memory, in which said program storing  
memory stores a connection management module for exchanging the  
connection information before handover and the connection  
25 information after handover between said mobile node and said

gateway, when said mobile node is moved to a second communication network.

20. The gateway according to claim 19, wherein said connection management module comprises a control signal processing part  
5 for receiving a control message from said mobile node and transmitting the control message to said mobile node, a data conversion part for converting the connection information, and a connection information management part for storing the connection information.

10 21. The gateway according to claim 19, wherein said connection management module is located on the network layer, in which said connection information includes a transmission source IP address and a transmission destination IP address.

15 22. The gateway according to claim 19, wherein said connection management module is located on the transport layer, in which said connection information includes a transmission source IP address, a transmission destination IP address, a transmission source port number, a transmission destination port number and a kind of transport layer.

20 23. A gateway communication method for a gateway in a communication system for enabling a mobile node residing in a first communication network to communicate via said gateway with a communication distant node, comprising a connection information control step of exchanging the connection

information before handover and the connection information after handover between said mobile node and said gateway, when said mobile node is moved to a second communication network.

24. The gateway communication method according to claim 23,  
5 wherein said connection information control step comprises a control signal processing step of receiving a control message from said mobile node and transmitting the control message to said mobile node, a data conversion step of converting the connection information, and a connection information management  
10 step of storing the connection information.

25. The gateway communication method according to claim 23,  
wherein said connection information control step is located on the network layer, in which said connection information includes a transmission source IP address and a transmission destination  
15 IP address.

26. The gateway communication method according to claim 23,  
wherein said connection information control step is located on the transport layer, in which said connection information includes a transmission source IP address, a transmission  
20 destination IP address, a transmission source port number, a transmission destination port number and a kind of transport layer.